DOCUMENT RESUME

ED 195 311 JC 800 645

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TITLE Science Courses Participated in and Completed by Students at Each of the Colleges in the Los Angeles Community College District.
INSTITUTION Center for the Study of Community Colleges, Los Angeles, Calif.
PUB DATE [80]
NOTE 14p.

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Academic Achievement: Agricultural Education: Biological Sciences: College Mathematics: *College Science: Community Colleges: Computer Science Education: *Courses: Engineering Education: *Enrollment: Physical Sciences: Social Sciences: Two Year Colleges: *Two Year College Students
IDENTIFIERS *Los Angeles Community Colleges CA

ABSTRACT

The transcripts of 8,873 students, representing 7% of the enrollments in the Los Angeles Community College District, were examined to determine course participation and completion rates in science. Six curricular areas were investigated: (1) agriculture: (2) biological sciences: (3) engineering: (4) mathematics and computer science: (5) physical sciences (i.e., chemistry, earth and space science, and physics): and (6) social sciences (i.e., anthropology, economics, psychology, and sociology). The study revealed that while 58% of the students had taken at least one science course, only 42% had completed a science course, and that the students in the sample had completed 52% of the science courses in which they had enrolled. Social science courses had the highest enrollment rate (34.7%), followed by math (30.9%), physical sciences (24.2%), biological sciences (15.4%), and engineering (6.9%). Social science courses also had the highest completion rates, with 52% of the courses taken being completed, followed by engineering and biology (54% each), math (48%), and physical sciences (47%). Agriculture courses were offered primarily at Pierce College, where 5.3% of the students enrolled in and 3.8% completed agriculture courses. Agriculture students completed 72% of the courses in which they enrolled. The study report provides tables which break down findings by each of the nine colleges in the district. (JP)

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SCIENCE COURSES PARTICIPATED IN AND COMPLETED BY STUDENTS AT EACH OF THE COLLEGES IN THE LOS ANGELES COMMUNITY COLLEGE DISTRICT

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SCIENCE COURSES PARTICIPATED IN AND COMPLETED BY STUDENTS AT EACH OF THE COLLEGES IN THE LOS ANGELES COMMUNITY COLLEGE DISTRICT

A major objective of the National Science Foundation's sponsored study of science education in the Los Angeles Community College District was to identify student course participation and completion rates in each of the following areas of science: (1) agriculture; (2) biological sciences; (3) engineering; (4) mathematics and computer sciences; (5) physical sciences--chemistry, earth and space science, physics; and (6) social sciences--anthropology, economics, psychology, sociology. The following questions were addressed in this report: What percentage of students at each of the District Colleges enrolled in a course in one or another of the six areas of science? What percentage of students at each of the District Colleges completed a course in one or another of the six areas of science? What was the course completion rate in different areas of science at each of the District Colleges?

Answers to these questions were based on analyses of 8,873 transcripts (a seven percent random sampling) of students enrolled in the Los Angeles Community College District in Spring, 1979. The data analyses were based on all courses in which these students were enrolled and were on record during the first census week between Fall, 1974 and Spring, 1979. Transcripts were provided by the District Data Processing Center. Jack Friedlander, Staff Associate, of the Center for the Study of Community Colleges, conducted the data analyses and prepared this report.

In addition to this report, findings of the student transcript analysis study are presented in the following papers: "Student Participation and Success in the Los Angeles Community College District Science Courses" and "The Initial Science Course: Its Relationship to Enrollment and Success in Later Science Courses." These reports, along with tables containing data on enrollment, completion, and success in science courses for women, minorities, and handicapped students at each of the District Colleges, can be obtained from the Center for the Study of Community Colleges.

Summary of Results

Participation and completion rates in science courses by college. Overall, 42.6 percent of the students in the Los Angeles Community College District completed a course in the sciences. The colleges that had the highest percentage of their students completing a science course were Pierce (52.9%), Valley (48.4%), Harbor (45.9%), and Southwest (45.8%).

Students in the sample completed 52 percent of the science courses in which they were enrolled. The course completion rate in the sciences was highest at Pierce (60%), and Valley (56%). The course completion rate at the other colleges was as follows: Southwest (64.1%), Harbor (62.3%), Valley (61.8%), East (61.3%), City (56.6%), West (51.5%), Mission (41.4%), and Trade Tech (38.4%).

Table 1

Participation and Completion Rates in Science Courses by College (N=8,873)

College	Percent of Students Enrolled in a Science Course	Percent of Students Completing a Science Course	Percent of Science Courses Completed
Total Sample	58.0	42.6	52.0
Pierce	66.3	52.9	60.0
Valley	61.8	48.4	56.0
Harbor	62.3	45.9	49.0
Southwest	64.1	45.8	49.0
East	61.3	42.1	47.0
City	56.6	41.9	48.0
West	51.5	36.1	49.0
Trade Tech	38.4	26.9	49.0
Mission	41.4	23.4	49.0

Participation and completion rates in physical science courses by college. Just over 16 percent of the students in the District completed a course in the physical sciences. The percentage of students who completed a course in the physical sciences ranged from 25.6 percent at Pierce to 19 percent at Harbor and Valley to less than 12 percent at West, Southwest, Trade Tech, and Mission.

Students in the sample completed 49 percent of the physical science courses in which they enrolled. The colleges that had the highest course completion rates in the physical sciences were Mission (68%), Pierce (58%), and Valley (54%); the lowest completion rates were found at City (41%), Southwest (39%), and East (38%).

Table 2

Participation and Completion Rates in Physical Science Courses by College (N=8,873)

College	Percent of Students Enrolled in a Physical Science Course	Percent of Students Completing a Physical Science Course	Percent of Physical Science Courses Completed
Total Sample	24.2	16.3	47.0
Pierce	34.3	25.6	58.0
Harbor	25.8	19.6	50.0
Valley	27.1	19.3	54.0
East	25.1	15.1	38.0
City	22.6	13.3	41.0
West	17.5	11.2	52.0
Southwest	17.7	10.1	39.0
Trade Tech	14.6	9.3	50.0
Mission	11.7	8.1	68.0

Participation and completion rates in physical science courses by college.

Just over 16 percent of the students in the District completed a course in the physical sciences. The percentage of students who completed a course in the physical sciences ranged from 25.6 percent at Pierce to 19 percent at Harbor and Valley to less than 12 percent at West, Southwest, Trade Tech, and Mission.

Students in the sample completed 49 percent of the physical science courses in which they enrolled. The colleges that had the highest course completion rates in the physical sciences were Mission (68%), Pierce (58%), and Valley (54%); the lowest completion rates were found at City (41%), Southwest (39%), and East (38%).

Table 2

Participation and Completion Rates in Biological Science Courses by College (N=8,873)

College	Percent of Students Enrolled in a Physical Science Course	Percent of Students Completing a Physical Science Course	Percent of Physical Science Courses Completed
Total Sample	24.2	16.3	47.0
Pierce	34.3	25.6	58.0
Harbor	25.8	19.6	50.0
Valley	27.1	19.3	54.0
East	25.1	15.1	38.0
City	22.6	13.3	41.0
West	17.5	11.2	52.0
Southwest	17.7	10.1	39.0
Trade Tech	14.6	9.3	50.0
Mission	11.7	8.1	68.0

Participation and completion rates in mathematics courses by college.

Close to twenty percent of the students in the sample completed a course in mathematics (including computer sciences). The percentage of students who completed a mathematics course was greater than the District average at Southwest (23.5%), Pierce (22.2%), City (22%), Harbor (21.8%), and Valley (21.7%). Only 8.1 percent of the students at Mission completed a course in mathematics.

Less than half of the mathematics courses in which students enrolled were completed. Only at Pierce (56%) and Valley (50%) did students complete fifty percent or more of their mathematics courses. The percentage of mathematics completed at the other colleges in the District were as follows: Trade Tech (47%), Harbor (46%), City (45%), Southwest (44%), East (42%), West (41%), and Mission (32%).

Table 3

Participation and Completion Rates in Mathematics-Computer Sciences by College (N=8,873)

College	Percent of Students Enrolled in a Mathematics Course	Percent of Students Completing a Mathematics Course	Percent of Mathematics Courses Completed
Total Sample	30.9	19.8	48.0
Southwest	39.5	23.5	44.0
Pierce	31.7	22.2	56.0
City	33.0	22.0	45.0
Harbor	34.5	21.8	46.0
Valley	32.3	21.7	50.0
East	31.8	18.1	42.0
Trade Tech	24.5	16.5	47.0
West	28.5	16.5	41.0
Mission	18.0	8.1	32.0

Participation and completion rates in social science courses by college. Nearly twenty-five percent of the students in the sample completed a course in the social sciences. The percentage of students in a college who completed a social science course was highest at Southwest (31.9%), Pierce (31.5%), and Valley (30.5%), and lowest at West (19.8%), Mission (12.2%), and Trade Tech (10.9%).

The course completion rates in the social sciences exceeded that of the total sample at Pierce (61%), Valley (61%), and Harbor (57%). The percentage of social science courses completed by students at the remaining District Colleges were, in descending order: Southwest (56%), East (53%), West (52%), City (50%), Trade Tech (49%), and Mission (47%).

Table 4

Participation and Completion Rates in the Social Sciences by College (N=8,873)

College	Percent of Students Enrolled in a Social Science Course	Percent of Students Completing a Social Science Course	Percent of Social Science Courses Completed
Total Sample	34.7	24.9	56.0
Southwest	42.7	31.9	56.0
Pierce	40.4	31.5	61.0
Valley	38.8	30.5	61.0
Harbor	36.4	26.7	57.0
East	36.0	24.4	53.0
City	36.0	23.9	50.0
West	30.0	19.8	52.0
Mission	24.8	12.2	47.0
Trade Tech	17.1	10.9	49.0

Participation and completion rates in biological science courses by college.

Only 10.7 percent of the students in the Los Angeles Community College District completed a course in the biological sciences. Over ten percent of the students completed at least one biological science course at Pierce (15.9%), Harbor (14.1%), Southwest (11.3%), and City (10.2%). A much smaller percentage of the students at Trade Tech (6.1%) and Mission (5%) completed a biological science course.

Students in the sample completed 54 percent of the biological science courses in which they enrolled. The course completion rates in the biological sciences were higher than that of the total sample at Mission (75%), Pierce (66%), East (57%), and Valley (56%), The lowest percentage of courses completed in the biological sciences were at Southwest (48%), Trade Tech (47%) and Harbor (39%).

Table 5

Participation and Completion Rates in the Biological Sciences by College (N=8,873)

College	Percent of Students Enrolled in a Biological Science Course	Percent of Students Completing a Biological Science Course	Percent of Biological Science Courses Completed
Total Sample	15.4	10.7	54.0
Pierce	20.6	15.9	66.0
Harbor	20.9	14.1	39.0
Southwest	17.9	11.3	48.0
City	15.1	10.2	53.0
East	15.0	9.9	57.0
West	14.8	9.8	54.0
Valley	13.1	8.9	56.0
Trade Tech	9.8	6.1	47.0
Mission	6.8	5.0	75.0

Participation and completion rates in engineering courses by college.

Four percent of the students in the sample completed a course in engineering. The percentage of students who completed an engineering course was highest at City (5.2%), Valley (4.9%), Harbor (4.9%), and Pierce (4.8%) and lowest at Trade Tech (2.9%), West (2%), Southwest (1.5%), and Mission (.5%).

The course completion rate in engineering was greater than that of the total sample at Pierce (61%), Valley (59%), City (56%), and Trade Tech (55%). Students completed less than half of their engineering courses at Southwest (46%), Harbor (44%), West (42%), and Mission (29%).

Table 6

Participation and Completion Rates in Engineering Courses by College (N=8,873)

College	Percent of Students Enrolled in an Engineering Course	Percent of Students Completing an Engineering Course	Percent of Engineering Courses Completed
Total Sample	6.9	4.0	54.0
City	8.3	5.2	56.0
Harbor	8.8	4.9	44.0
Valley	7.3	4.9	59.0
Pierce	7.6	4.8	61.0
East	9.0	4.2	51.0
Trade Tech	5.2	2.9	55.0
West	4.4	2.0	42.0
Southwest	3.8	1.5	46.0
Mission	1.4	.5	21.0

Percentage of students who enrolled in and completed agriculture courses by college. Agriculture courses were offered primarily at Pierce College. The students there who enrolled in and completed an agriculture course were 5.3 percent and 3.8 percent respectively. Students at Pierce completed 72 percent of the agriculture courses in which they enrolled.

Percentage of students enrolled in science areas by college. There was much variation among the District Colleges in the areas of science in which students enrolled. Southwest was the highest among the colleges in the percentage of students who signed up for a course in the social sciences (42.7%) and mathematics (39.5%). Pierce College had the highest percentage of students who enrolled in a course in the physical sciences (34.3%) and agriculture (5.3%). The highest percentage of students who signed up for a biological science course was found at Harbor College (20.6%), while East led all District colleges in the percentage of students who enrolled in an engineering course (9%).

Table 7

Percentage of Students Who Enrolled in a Course in a Science Area by College (N=8,873)

College	Total Science	Social Sciences	Mathe-matics	Physical Sciences	Biological Sciences	Engineering	Agriculture
Total Sample	58.0	34.7	30.9	24.2	15.4	6.9	1.1
Pierce	66.3	40.4	31.7	34.3	20.6	7.6	5.3
Southwest	64.1	42.7	39.5	17.7	17.9	3.8	--
Harbor	62.3	36.4	34.5	25.8	20.9	8.8	--
Valley	61.8	38.8	32.2	27.1	13.1	7.3	--
East	61.3	36.0	31.8	25.1	15.0	9.0	--
City	56.6	36.0	33.0	22.6	15.1	8.3	--
West	51.5	30.0	28.5	17.5	14.8	4.4	--
Mission	41.4	24.8	18.0	11.7	6.8	1.4	--
Trade	38.4	17.1	24.5	14.6	9.8	5.2	--

Percentage of students who completed a course in a science area by college. Pierce College led all others in the District in the percentage of students who completed at least one course in the physical sciences (25.6%), biological sciences (15.9%), and agriculture (3.8%). Southwest had the highest percentage of students who finished a course in the social sciences (31.9%) and mathematics (23.5%), while City College was first in the District in the percentage of students who completed a course in engineering (5.2%).

Table 8

Percentage of Students who Completed a Course in a Science Area by College (N=8,873)

College	Area of Science: Total Science	Social Sciences	Mathematics	Physical Sciences	Biological Sciences	Engineering	Agriculture
Total Sample	42.6	24.9	19.8	16.3	10.7	4.0	.8
Pierce	52.9	31.5	22.2	25.6	15.9	4.8	3.8
Valley	48.4	30.5	21.7	11.3	8.9	4.9	--
Harbor	45.9	26.7	21.8	19.6	14.1	4.9	--
Southwest	45.8	31.9	23.5	10.1	11.3	1.5	--
East	42.1	24.1	18.1	15.1	9.9	4.2	--
City	41.9	23.9	22.0	13.3	10.2	5.2	--
West	36.1	19.8	16.5	11.2	9.8	2.0	--
Trade Tech	26.9	10.9	16.5	9.3	6.1	2.9	--
Mission	23.4	12.2	8.1	8.1	5.0	.5	--

Percentage of courses completed in each of the six areas by college. In comparison to other District colleges, students at Pierce and Valley completed a greater percentage of their courses in social sciences, mathematics,

Percentage of courses completed in each of the six areas by college. In comparison to other District colleges, students at Pierce and Valley completed a greater percentage of their courses in social sciences, mathematics, and engineering. Mission College was first in the District in the percentage of courses completed in the biological and physical sciences, Pierce was second, and Valley was third.

Table 9

Percent of Courses Completed in Each of Six Science Areas by College (N=8,873)

College	Total Science	Social Sciences	Mathe-matics	Physical Sciences	Biological Sciences	Engineering	Agriculture
Total Sample	52	56	48	49	54	54	72
Pierce	60	61	56	58	66	61	72
Valley	56	61	50	54	56	59	--
Harbor	49	57	46	50	39	44	--
Mission	49	47	32	68	75	29	--
Southwest	49	56	44	39	48	46	--
Trade Tech	49	49	47	50	47	55	--
West	49	52	41	52	54	42	--
City	48	50	45	41	53	56	--
East	47	53	42	38	57	51	--

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